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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,597	02/14/2002	Francis Mouyen	0559-0110P	9713

2292 7590 11/29/2002

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EXAMINER
THOMAS, COURTNEY D

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,597	MOUYEN, FRANCIS	
	Examiner	Art Unit	
	Courtney Thomas	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulza-Ganzlin et al. (U.S. Patent 4,995,062) in view of Mouyen (U.S. Patent 5,382,798).

3.

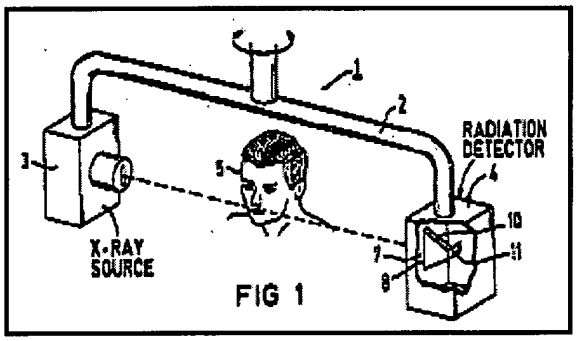


Figure 1 - U.S. Patent 4,995,062 to Schulza-Ganzlin et al.

4.

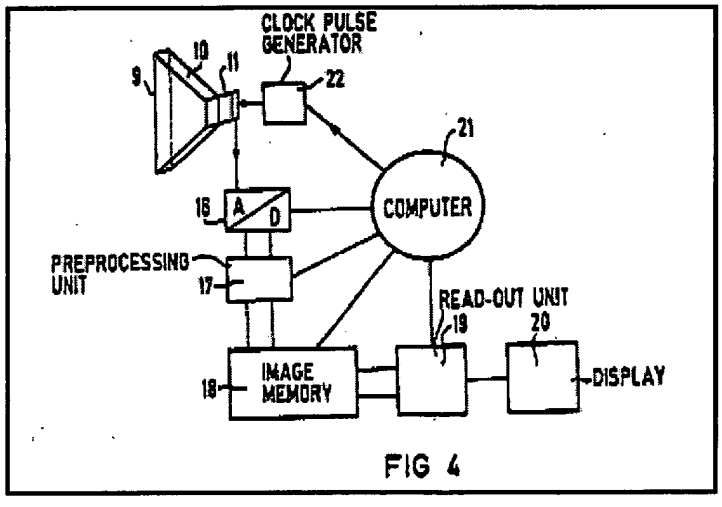
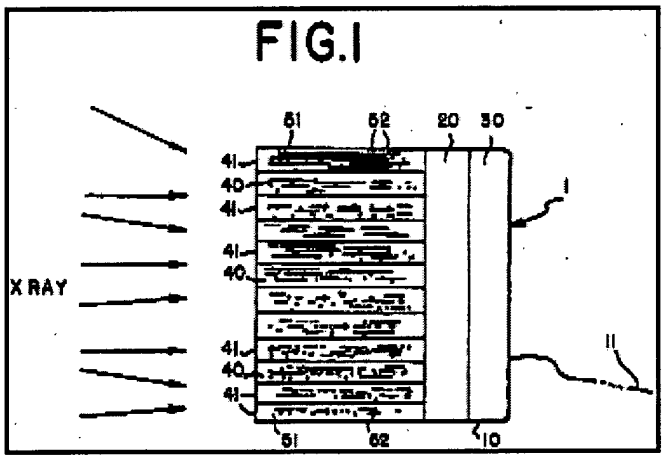
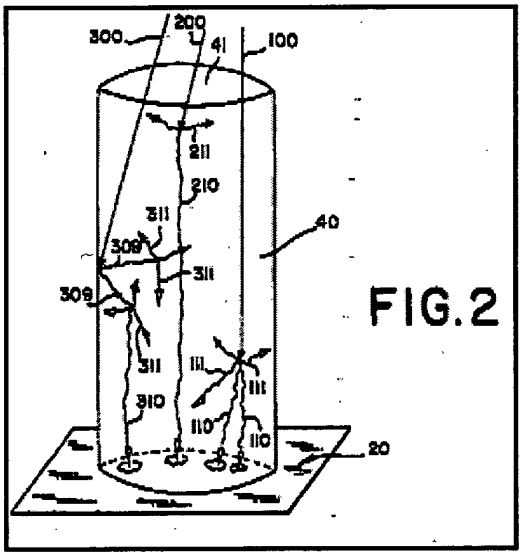


Figure 4 - U.S. Patent 4,995,062 t Schulza-Ganzlin et al.

5. As per claim 1, Schulza-Ganzlin et al. disclose a method comprising the steps of emitting a bundle of X-rays in the direction of a tooth and its surrounding area and guiding the X-rays that emerge from the tooth and its surrounding area; transforming X-rays into light rays of a greater wavelength than that of X-rays (Fig. 2, #9; column 3, lines 5-6); converting these light rays into electrical signals and processing these signals to produce radiographic data (abstract). Schulza-Ganzlin et al. do not explicitly disclose the step of guiding emerging X-rays into substantially cylindrical volumes substantially along the axis of the volume.

6.





Figures 1 and 2 - U.S. Patent 5,382,798 to Mouyen

7. Mouyen discloses a method comprising the step of guiding emerging X-rays (**200**) into substantially cylindrical volumes (**40**) substantially along the axis of the volume. Mouyen teaches that guiding emerging X-rays results in the formation of high quality pictures (column 1, lines 36-41).

8. It would have been obvious to modify the method of Schulza-Ganzlin et al. such that it incorporated the step of guiding emerging X-rays into substantially cylindrical volumes substantially along the axis of the volume. One would have been motivated to make such a modification so that received radiation is used to form high quality pictures, by reducing diffuse radiation as taught by Mouyen (column 1, lines 36-41; column 3, lines 51-63).

9. As per claims 2, 8 and 9, Schulza-Ganzlin et al. as modified above, do not explicitly disclose a method (and apparatus) comprising the step of filtering electrical signals in dependence of pre-determined criteria.

10. It would have been obvious to further modify the method and apparatus of Schulza-Ganzlin et al. such that it incorporated the step of filtering electrical signals. One would have been motivated to make such a modification so that signals known to produce deleterious effects in image reproduction are removed prior to image formation, thereby ensuring the production of high quality imagery.

11. As per claim 3, Schulza-Ganzlin et al. as modified above, disclose a method comprising converting light rays into analogue signals and subsequently into digital electrical signals (Schulza-Ganzlin et al.; Fig. 4-**16**)

12. As per claims 4 and 10, Schulza-Ganzlin et al. as modified above, do not explicitly disclose a method (and apparatus) wherein a portion of the electrical signals is amplified according to a predetermined function.

13. It would have been obvious to further modify the method (and apparatus) of Schulza-Ganzlin et al. such that it incorporated the step of amplifying a portion of electrical signals according to a predetermined function. One would have been motivated to make such a modification so that signals bearing intensities of interest are systematically amplified for image reproduction, thereby resulting in images possessing sharp contrast and high quality.

14. As per claim 5, Schulza-Ganzlin et al. as modified above disclose an apparatus comprising a source (Schulza-Ganzlin et al.- **3**); a plurality of cylindrical rods (Mouyen - **40**) capable of transforming x-rays into light rays of wavelengths greater than x-rays; means (Schulza-Ganzlin et al.- **11**) for converting light rays into electrical signals; means (Schulza-Ganzlin et al.- **10**) for connecting cylindrical rods to means (**11**) and means for processing electrical signals (Schulza-Ganzlin et al.-**16**, **17**, **18**, **29**, **20**, **21**).

15. As per claim 6, Schulza-Ganzlin et al. as modified above disclose an apparatus configured to convert light rays into analogue signals and a converter for converting analogue signals into digital signals (see Schulza-Ganzlin et al.; Fig. 4-**16**).

16. As per claim 7, Schulza-Ganzlin et al. as modified above disclose an apparatus comprising a CCD bar (see Schulza-Ganzlin et al.; Fig. 4-**11**) for converting light rays into analogue signals. Schulza-Ganzlin et al. do not explicitly disclose an apparatus comprising a CAN converter for converting analogue signals into digital signals.

17. Schulza-Ganzlin et al. teach the use of a converter (**16**) for converting analogue signals to digital signals.

18. It would have been obvious to further modify the apparatus of Schulza-Ganzlin et al. such that it incorporated a CAN converter. One would have been motivated to make such a modification so that signals are converted to a form that facilitates easy transmission via a network and for easy storage and retrieval. Additionally, examiner notes that practitioners are aware of converters possessing specifications that provide optimal performances for intended applications; the selection of particular A/D converters would be at the discretion of a practitioner and well within the skill level of one in the art.

19. As per claim 11, Schulza-Ganzlin et al. as modified above disclose an apparatus comprising a temporary memory (**18**) and a converter (**19**) for converting electrical signals into video signals.

20. As per claim 12, Schulza-Ganzlin et al. as modified above, do not explicitly disclose an apparatus wherein the cylindrical rods are comprised of CsI (cesium iodide).

21. It would have been obvious to further modify the apparatus of Schulza-Ganzlin et al. such that it incorporated cylindrical rods comprised of CsI (cesium iodide). One would have been motivated to make such a modification so that incident radiation is converted to visible light, thereby enabling detecting elements to receive radiation possessing lower levels of intensity. Additionally, practitioners would recognize the use of CsI as a conventional scintillating material, and would thereby regard it an obvious design choice.

22. As per claim 13, Schulza-Ganzlin et al. as modified above, do not explicitly disclose an apparatus wherein the cylindrical rods have a length between 80 and 200 μm for a diameter of between 3 and 7 μm.

23. Mouyen teaches cylindrical rod configuration based on the attenuation needs of an application as well as the desired resolution characteristics (column 2, lines 53-68).

24. It would have been obvious to further modify the apparatus of Schulza-Ganzlin et al. such that it incorporated cylindrical rods having a length between 80 and 200 μm for a diameter of between 3 and 7 μm. One would have been motivated to make such a modification so that desired attenuation of incident radiation and resolution characteristics are achieved, as taught by Mouyen (column 2, lines 53-68).

25. As per claim 14, Schulza-Ganzlin et al. as modified above, disclose an apparatus wherein cylindrical rods are in contact with one another to form a mosaic (see Mouyen; Figs. 4 and 5).

26. As per claim 15, Schulza-Ganzlin et al. as modified above, do not explicitly disclose an apparatus wherein means for connecting outlet faces of cylindrical rods comprise bundle of optical fibers.

27. It would have been obvious to further modify the apparatus of Schulza-Ganzlin et al. such that it incorporated fiber optic bundles for connecting outlet faces of cylindrical rods. One would have been motivated to make such a modification so that outlet radiation is captured and channeled to respective receiving ends of sensing elements, thereby ensuring minimal signal transfer loss between cylindrical rods and sensing elements.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

November 26, 2002

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800